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EXPERIMENT STATION FILE

INFLUENCE OF COTTON EXTENSION UPON COTTON PRODUCTION  
IN NORTHWEST LOUISIANA

A Study of 360 Farms in Caddo, Claiborne,  
De Soto, Jackson, Lincoln, and Union  
Parishes, Louisiana, 1935

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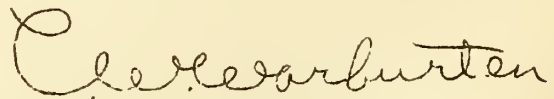
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and assistant county agent leader in the Southern States.

## FOREWORD

The importance of the cotton enterprise on southern farms and the attention being given to cotton production and marketing problems by State and county agricultural extension workers throughout the Cotton Belt, fully justify scientific study by extension administrative and supervisory officers to determine the present status of the cotton industry from an extension program standpoint, and to evaluate the progress being made through extension teaching and improving the cotton production and marketing practices followed by farmers. In the field study reported in this circular the usual concept of cotton production has been broadened to include farm practices relating to soil conservation and soil building, so essential to continuous successful cotton farming.

The information on current cultural practices should be most helpful in revising the cotton extension program in all parishes (counties) where agricultural conditions are similar. The influence of the cotton program of the Agricultural Adjustment Administration upon the teaching means and agencies employed by county agents is clearly indicated.

The data presented emphasize again the great importance of direct contact of extension workers with farm people in effective teaching.



C. W. Warburton,  
Director of Extension Work.

# III.

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### Scope of Study

This circular presents a study of the cotton production enterprise on representative farms in six northwest Louisiana parishes.

The study was undertaken for the purpose of obtaining more definite information regarding the influence of the teaching activities of the Cooperative Agricultural Extension Service upon the cultural practices now being followed in growing cotton in sample areas. The extension activities conducted over a period of years and the means and agencies employed in extension teaching have been analyzed not alone from the standpoint of the dissemination of reliable information, but also from the standpoint of actually influencing farmers to accept the improved cotton-production practices being advocated.

Many data are also presented regarding varieties, source of seed, spacing, fertilizing, and similar cultural and marketing practices which should be of inestimable value in the further development of a sound cotton-extension program throughout a large section of the State. In order that reliable information might be available regarding the grade and staple of the cotton grown on the farms studied, areas were selected around gins that were furnishing the Cotton Marketing Division of the Federal Bureau of Agricultural Economics with samples of each bale of cotton ginned.

### Collection of Data

Representatives of the Federal and State Extension Services, collected field data during late January and early February 1935, using the personal-interview survey method. A total of 369 records was obtained from the following gin areas:

<u>Area</u>	<u>Parish</u>	<u>Records</u>
Dixie.....	Caddo.....	19
Grand Cane.....	De Soto.....	81
Lisbon.....	Claiborne.....	77
Bernice.....	Union.....	68
Dubach.....	Lincoln.....	64
Jonesboro.....	Jackson.....	60

Records were obtained from those who were responsible for the cultural practices being followed. In most cases this meant from landowners, though in some cases the tenants made these decisions. It is estimated from the data obtained in these areas that between 1,000 and 1,100 families were engaged in cotton production on the 369 places for which records were obtained. Three hundred and six of the records were from white farm operators, and 63 from Negro farmers. Where the character of the information is such as to apply only to a single crop year the data are for the crop raised in 1934.

The field data were collected by a small survey party composed of experienced extension workers. In advance of going to the field the members of the party devoted considerable time to familiarizing themselves with the cotton-extension activities conducted, and in agreeing upon a uniform interpretation



of the questions included on the survey card (figs. 1a and 1b). Conferences were held each night, and the previous day's records were checked to insure the completeness and consistency of the information being obtained.

#### History of Farm Demonstration Work in Parishes Studied

Farm demonstration work was started in De Soto Parish in 1907; cooperative extension work, July 1, 1914. Since the inception of farm demonstration work, 11 county agents have served De Soto Parish. The present agent has served in the parish since January 1934. The tenure of those serving in the early days of the work, particularly prior to 1923, was for comparatively short periods of time. In fact the average number of years served by all agents is approximately 2.6 years per agent. The county agent who preceded the present agent served the parish for a period of 11-3/4 years. The parish has retained the services of a home demonstration agent since 1915.

Farm demonstration work was started in Caddo Parish in 1909 and cooperative extension work, July 1, 1914. Six county agents have served the parish since the work started. From March 1, 1917, to November 30, 1923, an assistant county agent was employed. The average length of service per agent since the work started is 4-1/3 years. The present agent has served for 6 years.

Farm demonstration work started in Claiborne Parish in 1909 and cooperative extension work, July 1, 1914. From October 31, 1919, until January 1922, the parish was without a county agent. Five county agents have served in Claiborne Parish for an average of 4-4/5 years per agent. The present agent has served for a period of 5 years.

Union Parish started farm demonstration work in 1909, and cooperative extension work, July 1, 1914. Seven county agents have served this parish for an average of approximately 4-1/2 years per agent. The present agent has served continuously for the past 12 years.

Farm demonstration work was started in Lincoln Parish in 1909, and cooperative extension work, July 1, 1914. Seven agents have served Lincoln for an average of approximately 4-1/3 years per agent. The present agent has served for a period of 8 years. The present agents' predecessor served for 7 years. The period of service for the remaining agents has been much shorter and in some instances has been overlapping, due to two agent's serving in the parish at the same time. The practice of using two agents in a parish was frequently followed in the early days of the work.

Farm demonstration work was started in Jackson Parish in 1909 and cooperative extension work, September 1, 1917. Six agents have served an average of 2.6 years per agent since the work began. The present agent has served continuously for the past 6 years. The longest period of service for any of the former agents was 3 years.

It will be observed that farm demonstration work began in each of these parishes in 1909 except in De Soto, where it started in 1907. On July 1, 1914,



No. \_\_\_\_\_ Co. \_\_\_\_\_ SURVEY OF RESULTS OF COTTON EXTENSION Date \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_ Community \_\_\_\_\_

Kind of road: A.W. \_\_\_\_\_ Imp. \_\_\_\_\_ Unimp. \_\_\_\_\_ Miles to agent's office \_\_\_\_\_ Total acres in farm \_\_\_\_\_

Acres in cult. crops \_\_\_\_\_ Owner \_\_\_\_\_ Tenant \_\_\_\_\_ Owner's name \_\_\_\_\_ Papers taken: Daily \_\_\_\_\_ Weekly \_\_\_\_\_ Farm \_\_\_\_\_ Phone \_\_\_\_\_ Radio \_\_\_\_\_

Stations useful farm information is obtained \_\_\_\_\_ Listen to F. and H. Hour \_\_\_\_\_

Soil type of cotton land: Alluv. \_\_\_\_\_ Greenville g.s.l. \_\_\_\_\_ Ruston f.s.l. \_\_\_\_\_ Ochlockonee \_\_\_\_\_ Orangeburg f.s. \_\_\_\_\_ Susquehanna f.s.l. \_\_\_\_\_ Kirvin \_\_\_\_\_ Other (name) \_\_\_\_\_ Degree of fertility: P. \_\_\_\_\_ M. \_\_\_\_\_ F. \_\_\_\_\_

Rain prior to planting: Exc. \_\_\_\_\_ Suf. \_\_\_\_\_ Insuf. \_\_\_\_\_ Rain during growing season: Exc. \_\_\_\_\_ Suf. \_\_\_\_\_ Insuf. \_\_\_\_\_

Rotation followed \_\_\_\_\_ Years followed \_\_\_\_\_ Cotton land terraced \_\_\_\_\_

Acres cotton grown 1934 \_\_\_\_\_ Variety \_\_\_\_\_ Years this variety grown \_\_\_\_\_

Bu. seeded per acre \_\_\_\_\_ Source of imp. seed \_\_\_\_\_ Fertilizer used: \_\_\_\_\_

Formula \_\_\_\_\_ Lbs. per acre \_\_\_\_\_ Method of application: Bed on top \_\_\_\_\_ In bed \_\_\_\_\_

Side dress \_\_\_\_\_ Spacing: 10-12 in. \_\_\_\_\_ 12-14 in. \_\_\_\_\_ 14 in. and over \_\_\_\_\_ No. plants per hill \_\_\_\_\_

Times cultivated \_\_\_\_\_ Implements used: Georgia s. & sw. \_\_\_\_\_ Row cult. \_\_\_\_\_ Method of weevil control \_\_\_\_\_

Method of other insect control \_\_\_\_\_

How is crop financed?: Farmer himself \_\_\_\_\_ Merchant \_\_\_\_\_ Factor \_\_\_\_\_ Bank \_\_\_\_\_ Prod. C.C. \_\_\_\_\_ Emerg. S.L. \_\_\_\_\_

Bales cotton produced 1934 \_\_\_\_\_ Bales Gov't class received \_\_\_\_\_ No. bales staple length 13/16 \_\_\_\_\_ 7/8 \_\_\_\_\_ 15/16 \_\_\_\_\_ 1 \_\_\_\_\_ 1 1/16 \_\_\_\_\_ 1 1/8 \_\_\_\_\_ 1 3/16 \_\_\_\_\_ 1 1/4 \_\_\_\_\_

No. bales graded G.M. + \_\_\_\_\_ St. M. \_\_\_\_\_ M. \_\_\_\_\_ St. L.M. \_\_\_\_\_ L.M. - \_\_\_\_\_

No. bales preparation: Smooth \_\_\_\_\_ Normal \_\_\_\_\_ Rough \_\_\_\_\_ Cotton sold as ginned \_\_\_\_\_

Days after ginning before sold \_\_\_\_\_ Price per lb. \$ \_\_\_\_\_ Lint sold: \_\_\_\_\_

In seed \_\_\_\_\_ Local merchant \_\_\_\_\_ Buyer's ag't \_\_\_\_\_ Farmer's Coop. \_\_\_\_\_ Bales on which Gov't loan was obtained \_\_\_\_\_

Bales sold according to Gov't class \_\_\_\_\_ Bales held for sale according to Gov't class \_\_\_\_\_ Increased income, if any, due to Gov't class \$ \_\_\_\_\_ Cotton seed sold: \_\_\_\_\_

Ginner \_\_\_\_\_ Oil Mill \_\_\_\_\_ Price \$ \_\_\_\_\_ Member cotton assoc. \_\_\_\_\_

Ever conduct cotton result demonstration \_\_\_\_\_ Other cotton extension activities on farm \_\_\_\_\_

Nature of contacts with county agent \_\_\_\_\_

Agronomy spec. \_\_\_\_\_ Other spec. \_\_\_\_\_

Fig. 1a. Obverse side of questionnaire card used in collecting data.

Extension activities relating to cotton attended or personal contacts with extension workers regarding cotton: - Result demonstration adult (dem.a.) \_\_\_\_\_ Junior (dem.Jr.) \_\_\_\_\_ Method demonstration (m.dem.) \_\_\_\_\_ General meeting (mtg.) \_\_\_\_\_ Bulletin (bul.) \_\_\_\_\_ Office call (o.c.) \_\_\_\_\_ Farm visit (f.v.) \_\_\_\_\_ Circular letter (cir.l.) \_\_\_\_\_ News story (n.s.) \_\_\_\_\_ Exhibit (exh.) \_\_\_\_\_ Telephone (tel.) \_\_\_\_\_ Correspondence (cor.) \_\_\_\_\_ Radio talk (r.) \_\_\_\_\_ Poster (p.) \_\_\_\_\_ Indirect influence (ind.) \_\_\_\_\_

Practices adopted due to extension influence and means and agencies responsible

Practice	Methods largely responsible	County agri. agent involved	Specialist involved
Rotation			
Improved variety			
Purebred seed			
Preparation of land			
Fertilizer			
Close spacing			
Terracing			
Insect control			
Frequent cultivation			
Cooperative marketing			
Market according to grade and class			
Market news information			
Outlook			
Educational training: Common _____ High school _____ College _____			
Attitude toward extension: Favorable _____ Indifferent _____ Opposed _____			

Notes: \_\_\_\_\_

Fig. 1b. Reverse side of questionnaire card used in collecting data.

when farm demonstration work became a part of the Cooperative Extension Service each parish except Jackson continued to work under the new program. Jackson Parish was without an agent from January 1, 1914, until September 1, 1917, and work after 1917 was intermittent until the employment of the present agent.

### Areas Studied

The communities studied are located in Caddo and De Soto Parishes of northwest Louisiana, and in Claiborne, Union, Lincoln, and Jackson Parishes of north central Louisiana (fig. 2). These areas were selected for the following reasons: First, they are representative of a large part of the State. Second, the practices followed in these areas are common to those of a large section of the State. Third, the first farm demonstration agents installed in the State were in this area. Fourth, a larger percentage of the cotton grown in the upland part of this section is less than seven-eighths of an inch than is the case in any other part of the State. Fifth, in each of the communities studied there was a gin that cooperated with the Cotton Marketing Division of the Federal Bureau of Agricultural Economics. The reports of the grade and staple studies of these gins were made available for this study.

The topography of this area is rolling to hilly. Red River and many other smaller streams traverse this section. The most fertile soils of the area are along these streams, especially along Red River. Only one community, Dixie, Caddo Parish, is located in the Red River bottom. This entire area was originally heavily timbered, but most of the virgin timber has been cut off by sawmills. Reforestation in the upland areas is gradually taking place, and pulpwood, piling, and other forest products give industrial employment and a supplemental source of cash income to the farmers. Large oil and gas fields have been developed in Caddo, De Soto, and Union Parishes. Farmers throughout these areas have received lease money which has supplemented their cash income.

Shreveport with a population of eighty thousand is located in Caddo Parish near the Texas and Arkansas lines. This is the only large city in the northwest part of the State, and it is the center of the oil and gas interests for the surrounding parts of Louisiana, Texas, and Arkansas. Many thriving towns are scattered throughout the parishes studied. These centers provide employment for nonagricultural groups and supply a local market for a limited amount of agricultural and livestock products. A network of paved and graveled highways traverses the entire area and all parish (county) seats are connected by paved highways.

### Crops, Livestock, and Soils

The principal field crops of this section are cotton and corn. Peas and beans are planted as a companion crop to corn and alone for hay and soil improvement. A small acreage of peanuts, oats, and cane for sirup is grown by many farmers. Vegetables and fruits are grown principally for home use.

Hogs are grown for home needs, and a limited supply is sold in the local centers. A few cows are kept to supply home needs. Commercial dairy-ing is followed only to the extent of supplying the needs of the local centers,



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including the city of Shreveport. A farm flock of poultry is kept by most farmers for home use and is a supplemental source of income on some farms.

The predominating upland soil types of the areas studied are Kirvin fine sand loam and Ruston sandy loam. The Kirvin surface soil is commonly light brown to grayish brown in color and has a moderately compact red upper subsoil with some gray mottling with increasing depth. Although the Ruston soils occur in areas having a rolling to hilly topography, they are usually found with less relief than the Kirvin series. The more common types of Ruston, the sandy loam and loamy sand, have grayish-brown surface soils and friable or permeable sandy-clay reddish-yellow subsoils.

The Red River bottom soils are classified largely as Miller very fine sandy loam, Miller silt loam, and Miller clay.

The virgin soils of this area are fairly fertile and, with proper care and approved cultural practices, produce profitable crops of cotton and other general field crops.

If for the purpose of this study those soils producing 1/4 of a bale of cotton or less per acre in 1934 were classified as poor, those producing 1/4 to 1/2 a bale per acre as medium, and those producing more than 1/2 a bale per acre as fertile, it is found that only 7.6 percent of the farms studied were fertile, 71.8 percent were of medium fertility, and 20.6 percent were of poor fertility. According to estimates of the farmers interviewed nearly 43 percent of the farms operated by Negroes were classed as poor in fertility, whereas this was true of but 16 percent of the farms operated and managed by white farmers (table 1).

Table 1.--Fertility of farms studied

Degree of fertility	Percentage of farms		
	Total	White	Negro
Poor.....	20.6	16.0	42.9
Medium.....	71.8	76.5	49.2
Fertile.....	7.6	7.5	7.9

#### General Information Regarding Farms Studied

Of the 369 farmers interviewed 306 were white, and 63 Negro. Of the white farmers, 90 percent owned part or all of the land farmed (table 2a). This was true of 68 percent of the Negro farmers. The average number of acres of land operated or managed by the white farmers was 333, of which 137 acres were classed as cultivated land (annual crop plus hay). The Negro farmers operated or managed 140 acres of land, of which 68 acres were cultivated land. Roads suitable for travel at all seasons of the year passed by

the homes of 35 percent of the white farmers, and only 5 percent of the homes of the Negro farmers interviewed. Nearly 64 percent of the Negro farmers lived on unimproved dirt roads, in contrast to 22 percent of the white farmers. The average distance from the farmstead to the county seat was 12 miles, being practically the same for both the white and Negro farmers studied.

Table 2(a).--General information relating to farms included in study

Item	Total		White		Negro	
	Number	Percent-age	Number	Percent-age	Number	Percent-age
Records obtained.....	363	100	306	100	63	100
Farms operated by:						
Owners.....	313	86.4	276	90.2	43	68.3
Tenants.....	50	13.6	30	9.8	20	31.7
Average size of farm (acres).....	300	-	333	-	140	-
Acres cultivated (crops plus hay) per farm.....	126	-	137	-	68	-
Farms located on:						
All-weather roads.....	103	29.5	106	34.7	3	4.8
Improved roads.....	153	41.5	133	43.5	20	31.7
Unimproved roads.....	107	29.0	67	21.9	40	63.5
Average distance to county extension office (miles)....	12.0	-	12.0	-	12.4	-

That the farm home was equipped with a telephone was reported by nearly 25 percent of the white farmers, but by less than 2 percent of the Negro farmers. Nearly one-third of the white farmers reported radios, in contrast to 3 percent of the Negro farmers (table 2b). Of the white farmers, 70 percent subscribed to daily newspapers, and of the Negro farmers, 27 percent. Forty-two percent of the white farmers and 21 percent of the Negro farmers subscribed to local weekly newspapers. One or more farm papers were reported taken by 63 percent of the white farmers, and by 24 percent of the Negro farmers. Nearly 92 percent of the white farmers and nearly 51 percent of the Negro farmers took either a farm paper or a newspaper.

The farmers interviewed averaged approximately 50 years of age, there being less than a year's difference in the average ages of the white and Negro farmers. Educational training beyond the high school was reported by 10 percent of the white farmers studied, and an additional 28 percent had attended school beyond the eighth grade. Of the Negro farmers studied, only 3 percent had received any formal schooling beyond the eighth grade.

Table 2(b).--General information relating to farms included in study

Item	Total		White		Negro	
	Number	Percent- age	Number	Percent- age	Number	Percent- age
Farms with-						
Telephone.....	77	20.3	76	24.8	1	1.6
Radio.....	102	27.6	100	32.7	2	3.2
Farms taking papers:						
Daily.....	260	70.5	243	79.4	17	27.0
Weekly.....	140	37.9	127	41.5	13	20.6
Farm.....	226	61.2	211	63.0	15	23.8
Any.....	313	84.8	281	91.8	32	50.8
Average age of farmer (years)...	50.5	-	50.7	-	49.8	-
Educational training of farmers:						
Some college.....	31	8.4	31	10.1	-	-
Some high school but no college.....	89	24.1	87	28.4	2	3.2
Eighth grade or less.....	249	67.5	188	61.4	61	96.8



# Status of Cotton Growing in Areas Studied

## Terracing

The first step in maintaining and building soil fertility in the upland area of northwest and north-central Louisiana is a system of terraces properly laid out and constructed. With the exception of the Red River bottom area in Caddo Parish (Dixie community), the entire upland area of north Louisiana except the branch bottoms, which constitute a relatively small portion of the total area, needs terracing. Terracing has been encouraged by leading farmers and the Extension Service for many years, and though a considerable part of the cultivated land on the farms studied was reported as terraced, the existing terraces are in many instances inadequate and the systems incomplete. The Jonesboro community (Jackson Parish) reported 79 percent of the cropland terraced, which is the highest percentage of cultivated land terraced of any of the areas studied (table 3). This is followed by Bernice (Union) with 69 percent; Unionville (Lincoln) with 68 percent; Lisbon (Claiborne) with 44 percent; and Grand Cane (De Soto) with 19 percent. The cultivated acreage per farm in the Jonesboro community (Jackson) is, however, only approximately 1/2 to 1/3 of that of the other communities studied. With the exception of the Grand Cane area in De Soto Parish, where terracing has been emphasized for about 10 years only, terracing has been included in the extension programs of the communities practically since the beginning of farm demonstration work.

Table 3.--Cultivated land terraced on farms studied  
(by parishes)

Parish	Records obtained	Average number of acres of cultivated land and hay per farm	Percentage of cultivated land terraced
Caddo.....	19	345.2	-
De Soto.....	81	151.1	19.2
Claiborne.....	77	104.6	43.5
Union.....	68	104.8	69.2
Lincoln.....	64	141.1	67.8
Jackson.....	60	55.0	78.7
All farms studied.....	369	125.5	42.1

## Rainfall

The largest yields of cotton are usually obtained in years of light to moderate rainfall. The rainfall prior to planting time in 1934 was excessive in the judgment of 45 percent of the farmers interviewed, whereas 55 percent of the farmers held that it was only sufficient for proper preparation of the soil and normal planting. During the growing season the rainfall was very

light. Only 2 percent of the farmers interviewed reported sufficient rainfall to promote normal plant growth. On the remaining 98 percent of the farms included in the study, the rainfall was considered insufficient to meet moisture requirements. In addition to an exceptionally dry season a few days of northeast hot winds forced the crop to prematurity, thereby reducing the acre yields and the length of staple (table 4).

Table 4.--Rainfall during 1934 crop season

Rainfall	Percentage of farmers reporting		
	Total	White	Negro
Prior to planting:			
Excessive.....	44.7	43.8	49.2
Sufficient.....	54.8	55.9	49.2
Insufficient.....	.5	.3	1.6
During growing season:			
Excessive.....	-	-	-
Sufficient.....	2.4	2.6	1.6
Insufficient.....	97.6	97.4	98.4

#### Rotation

The rotation of crops has long been recommended by leading farmers and experiment stations as being fundamental to the maintenance and improvement of soil fertility. This fundamental principle is especially important in regard to a clean cultivated crop like cotton, which leaves the surface soil exposed to the detrimental effects of erosion if excessive rains occur. Eighty-five percent of the farmers interviewed followed a 2-year or longer rotation.

Two-year rotation.--A 2-year rotation of cotton followed by corn interplanted to peas or beans was used by 42 percent of the farmers interviewed, whereas 7 percent used cotton with corn planted alone.

Three-year rotation.--The principal 3-year rotation used on the farms studied consists of succession cotton followed by corn interplanted to peas. Of those using this rotation, 18 percent follow succession cotton with corn interplanted to peas, and 8 percent with corn alone. This rotation is practiced by those producers who normally plant two-thirds or more of their cultivated acreage to cotton.

Four-year or longer rotation.--Only 3 percent of the farms studied follow a 4-year or longer rotation. The group using this rotation is too small to be representative (table 5).

Rotation in relation to yield.--From table 6 it is apparent that yields for the 1934 crop season had little relationship to rotation of crops. The abnormally dry growing season was undoubtedly an important factor. It is also

entirely possible that farmers reported the rotation they would like to use but which had been interrupted during the years immediately preceding 1934 because of the very low prices received for cotton, and the correspondingly small amount of money available to most farmers with which to purchase legume seed.

Table 5.--Percentage of farmers following different rotations

Kind of rotation	Total	White	Negro
2-year.....	52.3	53.6	46.0
3-year.....	30.1	30.7	27.0
4-year or longer.....	2.7	3.3	-
Any.....	85.1	87.6	73.0
None.....	14.9	12.4	27.0
2-year rotation of-			
Cotton, corn with peas or beans.....	42.5	45.4	28.6
Cotton, corn alone.....	6.8	4.6	17.5
Cotton, corn or oats and peas.....	1.4	1.6	-
Other (mentioned once each).....	1.6	2.0	-
3-year rotation of-			
Cotton (2 yr.), corn with peas.....	17.9	19.3	11.1
Cotton (2 yr.), corn alone.....	7.0	5.6	14.3
Cotton, corn, peas.....	1.1	1.3	-
Cotton, corn, (2 yr.).....	1.1	1.0	1.6
Cotton (2 yr.), corn or stubble.....	0.5	0.6	-
Other (mentioned once each).....	2.4	2.9	-
4-year or longer rotation of-			
Cotton (3 yr.), corn alone.....	1.6	2.0	-
Cotton (3 yr.), corn with beans (3 yr.)..	0.3	0.3	-
Cotton, corn with peas, pasture (3 yr.)..	0.3	0.3	-
Other (mentioned once each).....	0.5	0.6	-

Table 6.--Relationship of rotation to cotton yield

Item	Farms	Acres grown	Cotton produced		
			Bales	Pounds	Average number of pounds per acre*
2-year rotation.....	193	7,761	2,763	1,320,714	170.2
3-year rotation.....	111	6,545	2,676.5	1,279,367	195.5
4 or more years rotation.....	10	503	188	89,864	178.6
No rotation.....	55	2,525	952	455,056	180.2
Total	369	17,334	6,579.5	3,145,001	181.4

\* Pounds calculated at 500 per bale less 22 pounds for bagging and ties.



## Varieties

Quick-maturing, high-yielding varieties adapted to the particular soil type and area are important. Varieties with a high percentage of lint with a staple length of seven-eighths of an inch or more are usually most profitable. This is particularly true when the value of differentials for staple lengths is reflected in the price paid the producers.

Prior to the infestation of this area by the boll weevil, the principal varieties grown were Mebane Triumph, Russell Big Boll, Rowden Big Boll, and similar vigorous heavy-foliaged late-maturing varieties. Following weevil infestation, these varieties were largely replaced by Half and Half. This variety was generally grown throughout this section, except in the Grand Cane community of De Soto Parish, until 1926, when Delta and Pine Land was introduced into the various communities by the Extension Service.

Half and Half, a quickly maturing, short-staple variety with a lint percentage of more than 40 was grown in 1934 on approximately 40 percent of the farms studied (table 7). Delta and Pine Land with a staple under normal conditions of an inch to 1-1/16 inches was grown by 23 percent of the farmers. Lankart was the only other variety grown by as many as 11 percent of the farmers interviewed. Twelve percent of the farmers grew mixed cotton.

Table 7.--Percentage of farmers growing different varieties of cotton

Variety	Total	White	Negro
	Percent	Percent	Percent
Half and Half.....	39.8	40.2	38.1
Delta and Pine Land.....	22.8	23.8	17.5
Lankart.....	10.8	12.4	3.2
Russell Big Boll.....	6.8	7.5	3.2
Qualla.....	4.9	2.6	15.9
Mebane Triumph.....	7.6	8.8	1.6
Dixie Triumph.....	3.8	4.6	-
Rowden Big Boll.....	.5	.6	-
Delfos.....	.5	.3	1.6
Vandiver's Heavy Fruiter.....	.5	.3	1.6
Others (mentioned once each).....	3.8	2.9	7.9
Farms reporting any variety.....	88.6	89.9	82.5
Farms growing mixed cotton.....	11.9	10.8	17.5
Variety not given.....	.3	.3	-

Note: Several farmers reported more than one variety grown, or reported a part of cotton a named variety, the remainder being mixed.

Table 8 shows the percentage of farms and acreages of the different varieties grown by the producers interviewed in the respective parishes. It is interesting to compare the different parishes with regard to the varieties of cotton being grown. In Caddo Parish (Dixie community) 63 percent of the farmers planted 79 percent of the 1934 cotton acreage to Delta and Pine Land, while 42 percent of the farmers grew Half and Half on approximately 10 percent of the acreage. Prior to the establishment of an outfield cotton variety and fertilizer test in the Dixie community in 1928 by the State experiment station, Half and Half was the predominant variety in that area. In 1928 about 40 percent of the cotton ginned by the Dixie Gin Company was less than 7/8 staple, whereas in 1934 only 2 percent of the cotton ginned at that gin was less than 7/8 staple.

Practically no Half and Half was grown in the De Soto Parish area (Grand Cane), Delta and Pine Land, Russell Big Boll, and Qualla being the principal varieties grown, in that order of listing.

In Claiborne, Union, and Lincoln Parish areas more than 50 percent of the farmers grew Half and Half, this variety being most popular in the Lincoln area where it was grown by nearly 80 percent of the farmers, and accounted for 67 percent of the cotton acreage.

Triumph was the predominating variety of cotton grown in the Jackson area, being reported by 45 percent of the farmers interviewed, and accounting for 38 percent of the acreage.

Variety in relation to yield.--Because of the great importance of soil fertility it is desirable to compare yields of the different varieties of cotton grown by parishes. In the river bottom area of Caddo Parish the average yields of Half and Half and Delta and Pine Land varieties were approximately the same (table 9). The greater length of staple of the Delta and Pine Land variety readily accounts for its popularity in that section. Half and Half substantially outyielded the Delta and Pine Land variety in De Soto and Lincoln Parishes, and underyielded it in Claiborne and Jackson Parishes. In Union Parish these two varieties yielded the same. In the absence of opportunity on the local market to obtain a premium for greater staple length it is not surprising that the Half and Half variety continues to be so largely grown. In Claiborne Parish, Russell Big Boll outyielded Delta and Pine Land, but in Jackson Parish the reverse was true. In De Soto Parish the yields of the two varieties were practically the same. Lankart outyielded Delta and Pine Land in De Soto, Union, and Lincoln Parishes. Triumph gave a larger yield than Delta and Pine Land in De Soto Parish, but a lower yield in Claiborne and Jackson Parishes. Rowden gave the lowest yield of any variety in Claiborne, the only parish in which it was reported. Qualla, in the one parish in which reported (De Soto) yielded about the same as Delta and Pine Land. Wallace was the highest yielding variety in Jackson Parish.

Variety in relation to staple length.--In all but the Jackson Parish area information on Government grade and staple was obtained from the cotton ginned for each producer. It is interesting to compare staple length of the different varieties. Omitting Caddo Parish because of the very favorable soil conditions represented, 81 percent of the Half and Half cotton ginned in the other areas

Table 8.--Varieties of cotton grown by parishes

Louisiana cotton study, 1935

Variety	Percentage of											
	Caddo		De Soto		Claiborne		Union		Lincoln		Jackson	
	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres	Farms	Acres
Half and Half.....	42.1	10.5	1.2	0.3	55.8	43.2	51.5	42.3	79.7	67.3	15.0	15.3
Delta and Pine Land.....	63.2	78.9	32.1	47.6	26.0	30.2	17.6	26.1	6.2	7.3	16.7	16.1
Lankart.....	-	-	3.7	2.5	-	-	30.9	17.9	15.6	11.6	10.0	17.6
Russell Big Boll.....	-	-	27.2	13.0	1.3	1.6	1.5	0.2	-	-	1.7	1.4
Qualla.....	-	-	22.2	11.3	-	-	-	-	-	-	-	-
Triumph.....	-	-	8.6	3.5	7.8	4.6	1.5	0.6	1.6	0.2	45.0	38.4
Rcwden.....	-	-	-	-	2.6	3.2	-	-	-	-	-	-
Other.....	31.6	10.6	7.4	7.4	2.6	0.2	1.5	0.4	1.6	0.2	3.3	4.5
Mixed.....	-	-	17.3	14.1	14.3	17.1	8.8	12.4	7.8	13.4	13.3	6.6
Variety not given.....	-	-	1.2	0.4	-	-	-	-	-	-	-	-



Table 2.--Comparative yield of the different varieties of cotton grown, by parishes  
(Acreage included for farms which grew only one variety)

Variety	Total		Caddo		De Soto		Claiborne		Union		Lincoln		Jackson	
	Acres	Pounds per acre	Acres	Pounds per acre	Acres	Pounds per acre	Acres	Pounds per acre	Acres	Pounds per acre	Acres	Pounds per acre	Acres	Pounds per acre
Half and Half.....	4,134	172	205	344	12	120	1,101	143	728	145	2,012	182	76	151
Delta and Pine Land.....	4,835	233	2,308	350	1,345	100	627	162	399	145	60	104	96	219
Lankart.....	706	177	-	-	7	137	-	-	272	162	335	183	92	203
Qualla.....	389	96	-	-	389	96	-	-	-	-	-	-	-	-
Russell Big Boll..	350	116	-	-	295	102	41	222	-	-	-	-	14	102
Triumph.....	409	170	-	-	58	115	105	150	-	-	-	-	246	191
Rowden.....	84	114	-	-	-	-	84	114	-	-	-	-	-	-
Wallace.....	20	239	-	-	-	-	-	-	-	-	-	-	20	239
Station Miller....	23	146	-	-	-	-	-	-	-	-	-	-	23	146

Table 10.--Comparative yield and length of staple of different varieties of cotton grown

Variety	Farms	Acres	Pounds yield per acre	Percentage of cotton of different staple lengths				
				13/16 in. or less	7/8 in.	15/16 in.	1 in.	1-1/16 in. 1-3/16 in.
Half and Half:								
All 5 areas.....	116	4,058	173	70.7	22.4	5.2	1.5	-
4 areas (Caddo omitted).....	112	3,853	164	80.6	18.2	1.0	-	-
Delta and Pine Land:								
All 5 areas.....	48	4,739	234	6.2	23.7	45.1	23.8	1.3
4 areas (Caddo omitted).....	40	2,431	123	31.9	50.0	16.8	0.2	-
Lankart:								
3 areas.....	24	614	173	65.3	23.5	11.2	-	-
Qualla:								
1 area.....	15	389	96	4.4	64.4	31.1	-	-
Russell Big Boll:								
2 areas.....	10	336	117	8.5	55.9	35.6	-	-
Triumph:								
2 areas.....	9	163	138	32.5	50.0	15.0	2.5	-
Rowden:								
1 area.....	2	84	114	63.2	36.8	-	-	-

Note: Jackson Parish is not included, since the gin failed to identify bale samples submitted for classing as those of individual growers.

was 13/16 of an inch or less, and an additional 18 percent 7/8-inch, leaving but 1 percent 15/16-inch in length. Of the Delta and Pine Land cotton grown in the same areas but 32 percent was 13/16-inch, 50 percent 7/8-inch, and nearly 17 percent 15/16-inch staple. The staple length of the Lankart variety was much shorter than that of Delta and Pine Land, but somewhat longer than Half and Half. Qualla and Russell Big Boll classed somewhat longer than Delta and Pine Land, nearly one-third of these varieties being 15/16-inch in staple. Triumph staple length was practically the same as that of Delta and Pine Land. Rowden cotton was similar in staple length to Lankart (table 10).

In comparing yields and staple lengths of the above named varieties of cotton the reader must keep in mind that the information given is for but a single crop season when there was an unusual shortage of rainfall during the growing season.

#### Source of Seed

Forty-four percent of the farmers interviewed obtained their planting seed from neighboring farmers. This emphasizes the necessity of establishing in the community with leading farmers a supply of planting seed, if the most widespread use of the variety is to be obtained.

Thirty-five percent of the producers included in the study obtained foundation seed direct from the breeder. Merchants, ginner, and seed dealers supplied planting seed to 14 percent of those interviewed. Foundation seed was obtained from the experiment station by only 0.8 percent of those studied; 0.5 percent practiced field selection of seed. The varieties grown by the 369 producers interviewed have been planted an average of 3.2 years since renewing the planting seed (table 11).

Table 11.--Percentage of farmers obtaining seed from different sources

Source	Total Percent	White Percent	Negro Percent
Neighboring farmers.....	43.6	41.5	54.0
Breeder.....	35.0	38.2	19.0
Merchant, ginner, and seed dealer.....	14.4	15.7	7.9
Experiment station.....	0.8	1.0	-
Own selection.....	0.5	0.6	-
Other.....	4.3	4.6	3.2
Source not reported.....	14.1	12.4	22.2
Average number years from source.....	3.2	3.2	3.4

#### Fertilizer

The soils of this area with favorable rainfall respond to the use of commercial fertilizer. Prior to 1933 fertilizer was quite universally used by

cotton producers of this section. However, with the decline in the price of cotton and the relatively high price of fertilizer as compared to that of cotton, many farmers discontinued its use. Only 36 percent of the farmers included in the study used fertilizer in 1934. Those using fertilizer treated an average of 31 acres of cotton per farm as compared to a planted acreage of 47 acres per farm for all farms studied.

Forty-eight percent of those using fertilizer in 1934 applied it at the rate of 162 pounds per acre and made the seedbed on top of the fertilizer. An equal number applied it at the rate of 152 pounds per acre and placed the fertilizer in the bed. Eleven percent applied it as a side dressing at the rate of 118 pounds per acre. A mixed-good made up of phosphoric acid, nitrogen, and potash was used by 84 percent of those reporting fertilizer used in 1934, the most common mixture reported being 4 percent nitrogen, 8 percent phosphoric acid, and 4 percent potash. Phosphoric acid alone was used by 10 percent, whereas 16 percent used a nitrogenous material alone (table 12).

Table 12.--Kind of fertilizer used; rate and method of application

Item	Total	White	Negro
Percentage of farmers using any fertilizer...	36.0	37.9	27.0
Average acres fertilized on these farms.....	31.3	33.7	11.7
Percentage of farmers using fertilizer who bed on top.....	48.1	47.4	52.9
Average rate of such application per acre, pounds.....	162.2	166.7	134.4
Percentage of farmers using fertilizer who place in bed.....	48.1	49.1	41.2
Average rate of such application per acre, pounds.....	151.6	155.0	124.3
Percentage of farmers using fertilizer who side dress.....	11.3	12.1	5.9
Average rate of such application per acre, pounds.....	118.0	115.7	150.0
Percentage of farmers using fertilizer who report the following formulae:			
4-8-4.....	56.4	59.5	35.3
4-12-4.....	8.3	6.0	23.5
6-10-7.....	3.8	4.3	-
6-2-1.....	3.0	2.6	5.9
P <sub>2</sub> O <sub>5</sub> alone.....	10.5	9.5	17.6
Nitrogen alone.....	15.8	15.5	17.6
Other (mentioned only once).....	19.5	19.8	17.6

Fertilizer in relation to yield.--Only 53 of the 369 farms studied fertilized their entire acreage in 1934. A yield of 177 pounds of lint per



Table 13.--Relationship of use of fertilizer to yield

Item	Farms	Acres grown	Acres fertil- ized	Percentage of acres fertilized	Cotton produced *		
					Bales	Pounds	Average number of pounds per acre
All cotton acreage fertilized.....	53	2,123	2,123	100.0	786.5	375,947	177.1
Part of cotton acreage fertilized.....	60	3,514	1,432	40.8	1,191	569,298	162.0
Fertilizer used but cotton acreage fertil- ized not reported (Caddo and De Soto Parishes).....	20	3,571	-	-	1,799	859,922	240.8
Farms which used no cotton fertilizer.....	236	8,126	-	-	2,803	1,339,834	164.9
Total.....	369	17,334	3,555	20.5	6,579.5	3,145,001	181.4

\* Pounds calculated at 500 per bale less 22 pounds for wrapping.

acre was obtained from the 2,123 acres fertilized. Those fertilizing only a part of their cotton acreage obtained a yield of 162 pounds per acre on 3,514 planted acres. Those reporting no fertilizer used obtained a yield of 165 pounds per acre on 8,126 acres (table 13). The deficiency in rainfall during the growing season was perhaps the chief reason for the low returns from the use of fertilizer in 1934.

### Cultural Practices

As the term is used here, cultural practices include seedbed preparation, planting, thinning of plants, and cultivation of the plants until a crop has been set. Through oversight, questions on preparation of seedbed and dates of planting were left off the schedules used in the collection of field data.

The 369 farms studied reported an average of 0.9 bushels of planting seed used per acre, and the plants thinned to an average of 2.7 plants per hill. The hills were spaced 10 to 12 inches apart in the drill by 54 percent of the farmers interviewed, 12 to 14 inches by 26 percent, and 14 inches and over by 19 percent (table 14).

The number of cultivations given by those included in this study ranged from 2 to 10 in 1934 with an average of 5.1 per season for the group.

Georgia stock and sweep (including double shovel) was the only implement used for cultivating by 85 percent of those interviewed. Nine percent used both Georgia stock with sweep attachment and a row cultivator, and 5 percent used a row cultivator alone.

Table 14.--Cultural practices followed

Cultural practices	Total	White	Negro
Percentage of farmers spacing:			
10 to 12 inches.....	54.5	55.6	49.2
12 to 14 inches.....	26.0	22.9	41.3
14 inches and over.....	19.2	21.2	9.5
Average number of plants left per hill.....	2.7	2.7	2.5
Average number of times cultivated.....	5.1	5.1	5.2
Percentage of farmers using following implements:			
Georgia stock and sweep only (including double shovel).	85.4	83.7	93.6
Row cultivator only.....	5.1	5.6	3.2
Both Georgia stock and sweep and row cultivator.....	9.2	10.4	3.2
Average rate of seeding per acre, bushel.....	0.9	0.8	1.1

Cultural practices as related to yields.--The very closely spaced cotton (10 to 12 inches), reported by 201 of the farmers interviewed, did not produce as large yields per acre as did the medium-spaced cotton (12 to 14 inches), the



difference being 55 pounds of lint cotton per acre in favor of the wider spacing. The widest-spaced cotton (14 inches and over) yielded only slightly more than the very closely spaced cotton (table 15).

Table 15.--Relationship of spacing to cotton yield

Item	Farms	Acres grown	Cotton produced		
			Bales	Pounds	Average number of pounds per acre*
Spacing:					
10 to 12 inches.....	201	9,459	3,212	1,535,336	162.3
12 to 14 inches.....	96	5,777	2,628	1,256,184	217.4
14 inches and over.....	71	2,052	728.5	348,223	169.7
Farms not reporting.....	1	46	11	5,258	114.3
Total.....	369	17,334	6,579.5	3,145,001	181.4

\*Pounds calculated at 500 per bale less 22 pounds for bagging and ties.

The importance of frequent cultivation of the growing crop is clearly brought out in table 16. Where the cotton was cultivated six or more times the yield reported was 222 pounds per acre as compared to 156 pounds where the crop was cultivated four to five times, and 118 pounds per acre where only two to three cultivations were made.

Table 16.--Relationship of times cultivated to cotton yield

Item	Farms	Acres grown	Cotton produced		
			Bales	Pounds	Average number of pounds per acre*
Times cultivated:					
2 to 3 times.....	33	2,030	500.5	239,239	117.8
4 to 5 times.....	215	7,507	2,449.5	1,170,861	156.0
6 times and over.....	114	7,667	3,556.5	1,700,007	221.7
Farms not reporting.....	7	130	73	34,894	268.4
Total.....	369	17,334	6,579.5	3,145,001	181.4

\*Pounds calculated at 500 per bale less 22 pounds for bagging and ties.

### Yield of Cotton on Farms Studied

As would be expected, the average yield of cotton per acre on the farms studied was highest in the river bottom area in Caddo Parish - 325 pounds of lint cotton per acre (table 17). The lowest average yield was 108 pounds per acre in the De Soto Parish area. In comparison with census data on average yield of cotton per acre for the entire parish, it is evident that the areas studied in Caddo, Claiborne, Lincoln, and Jackson Parishes were somewhat above parish averages, and in De Soto and Union Parishes the areas studied were somewhat below parish averages insofar as average yield of cotton in 1934 was concerned.

Table 17.--Yield of cotton per acre by parishes

Parish	Records obtained	Total acres in cotton	Bales produced	Average number of pounds per acre	Average number of pounds per acre entire parish, 1935 census
Caddo.....	19	3,558	2,419.5	325.0	208
De Soto.....	81	4,522	1,019.5	107.8	120
Claiborne.....	77	2,621	827.5	150.9	127
Union.....	68	2,308	662.0	137.1	142
Lincoln.....	64	3,362	1,228.5	174.7	154
Jackson.....	60	963	422.5	209.7	172
Total.....	369	17,334	6,579.5	181.4	157.6

### Grade and Staple of Cotton Grown

As indicated previously, information was obtained from the gins in all of the parish areas studied except Jackson, regarding the staple length, grade, and preparation of each bale of cotton ginned for the farm studied, as determined by the Cotton Marketing Division of the Federal Bureau of Economics. In a few instances small amounts of cotton were ginned at other than cooperating gins, so that information on the grade and staple length of that cotton was not available. Grade and staple information was obtained for 5,178 of the 6,580 bales of cotton produced on the farms included in the study.

Nearly 28 percent of the cotton classed as 13/16, 31 percent as 7/8, 29 percent as 15/16, and 12 percent as 1 inch (table 18). Less than 1 percent of the cotton classed above 1 inch. Approximately 14 percent of the cotton graded good middling or better, 53 percent strict middling, 29 percent middling, and 4 percent strict low middling. Less than 1 percent graded low middling or poorer.

As to preparation, 94 percent of the cotton was classed as normal, and 6 percent as rough.

Table 18.--Grade and staple of cotton produced

Grade or staple	Total	White	Negro
Bales produced.....	6,572.5	5,826.5	633
Bales Government classed.....	5,178.5	4,550.5	628
Percentage of cotton of following staple lengths:			
13/16 inch.....	27.6	28.7	20.1
7/8 inch.....	31.1	31.8	26.3
15/16 inch.....	28.7	27.0	40.8
1 inch.....	12.0	11.9	12.9
1-1/16 inches.....	0.5	0.6	-
1-3/16 inches.....	0.1	0.1	-
Percentage of cotton of following grade:			
Good middling or better.....	13.9	13.3	17.7
Strict middling.....	53.3	52.5	59.1
Middling.....	28.7	29.7	21.3
Strict low middling.....	3.8	4.1	1.8
Low middling or poorer.....	0.3	0.3	0.2
Percentage of cotton of following preparation:			
Smooth.....	0.1	-	0.3
Normal.....	93.8	93.6	95.2
Rough.....	6.1	6.4	4.4
Farmers receiving information from ginner as to Government class of their cotton.....	25	24	1
Bales of cotton produced on these farms.....	1,827	1,817	10

Only 25 farmers out of the 369 interviewed had received information from the gin as to the Government class of their cotton. That this number included the larger cotton growers is indicated by the fact that these 25 farms produced 35 percent of all the cotton for which Government class was available. Although the classing of cotton ginned in representative cotton producing areas by the Federal Bureau of Agricultural Economics is primarily a service or statistical activity, it would seem that some provision should be made, possibly by the Extension Service, to obtain a wider distribution of authentic information on the quality of cotton being produced to increase appreciation of the value of such information. Again the question of being able to obtain premium on the local market for higher quality cotton is raised. In the absence of proper price differentials the stimulus to produce better cotton is lacking.

Information regarding staple length, grade, and preparation of the cotton grown on the farms studied in the various parishes is presented in tables 19, 20, and 21. It is interesting to compare these data with those showing the varieties of cotton grown in the different parishes as reported in table 9. The close relationship between the percentage of the cotton acreage planted to the Half and Half variety, and the percentage of untenderable cotton produced in the parish areas studied is clearly indicated in graph 1. The growing of the Half and Half variety seems to have very little bearing upon the grade of cotton produced.

Table 19.---Staple length of cotton grown by parishes

Parish	Total number of bales of cotton produced	Bales of cotton Government classified	Percentage of cotton of different staple lengths				
			13/16 in.	7/8 in.	15/16 in.	1 in.	1-1/16 in. 1-3/16 in.
Caddo.....	2,419.5	2,331	1.9	20.9	49.8	26.1	1.2 -
De Soto.....	1,019.5	656	2.0	64.3	32.8	0.9	-
Claiborne.....	827.5	627	67.0	28.9	3.7	0.5	-
Union.....	662	427	44.3	44.3	11.2	0.2	-
Lincoln.....	1,228.5	715	89.5	10.1	-	-	0.4
Jackson*.....	422.5	422.5	29.3	61.2	9.0	0.5	-

\* Percentages based on all gin samples classed since individual samples did not show bale number.



Table 20.---Grade of cotton grown by parishes

Parish	Total num- ber of bales cotton produced	Bales of cotton Government classed	Percentage of cotton of different grades				
			Good middling or better	Strict middling	Middling	Strict low middling	Low middling or poorer
Caddo.....	2,419.5	2,331	13.1	45.9	33.0	7.5	0.6
De Soto.....	1,019.5	656	17.5	55.3	25.8	1.2	0.2
Claiborne.....	827.5	627	11.3	77.5	11.2	-	-
Union.....	662	427	8.7	67.7	23.0	0.5	0.2
Lincoln.....	1,228.5	715	23.2	44.8	30.9	1.0	0.1
Jackson*.....	422.5	422.5	5.7	55.5	37.6	1.2	-

\* Percentages based on all gin samples classed, since individual samples did not show bale number.

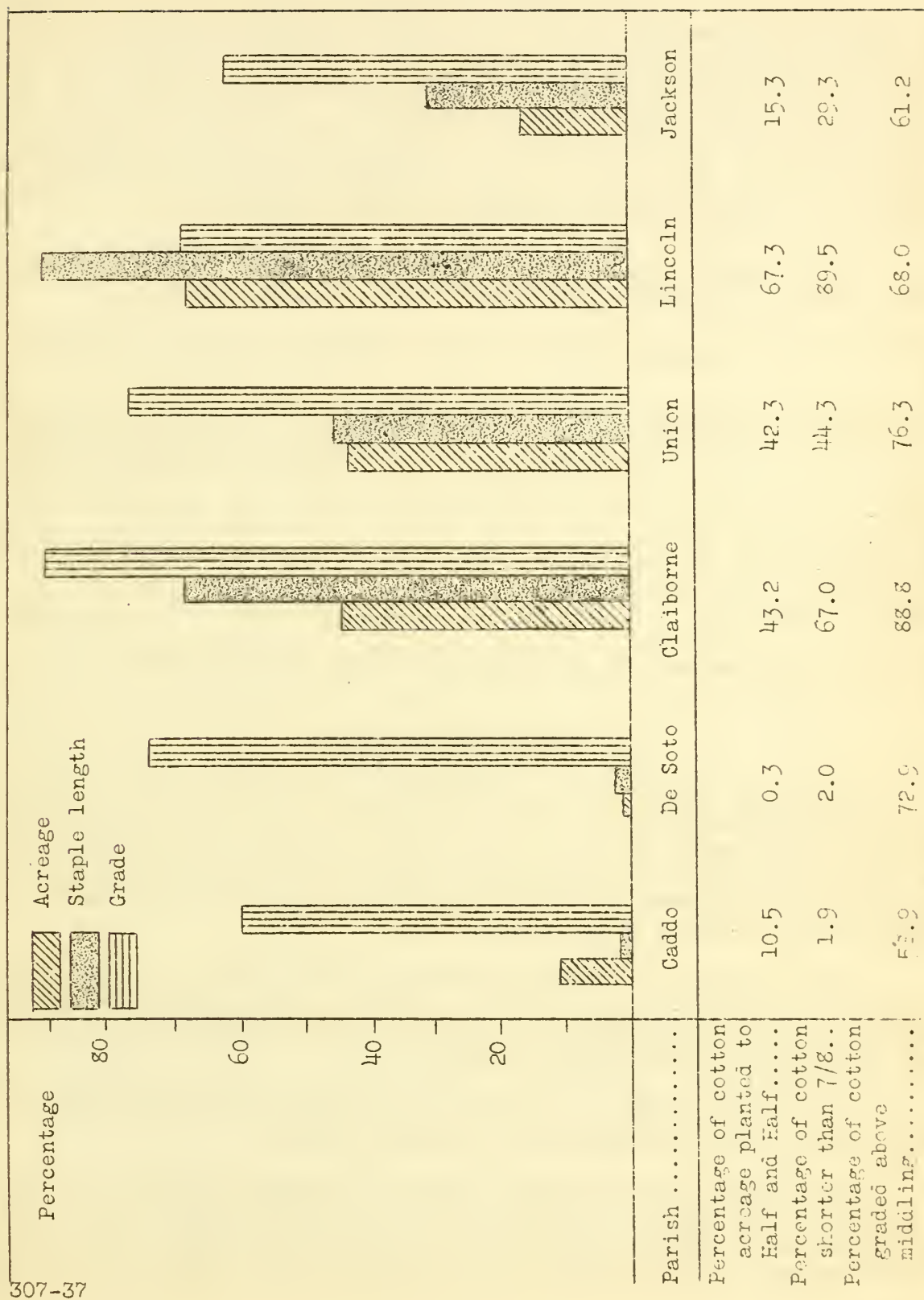
Table 21.--Preparation of cotton grown by parishes

Parish	Number of bales of cotton produced	Bales of cotton Government classed	Percentage of cotton of different preparation		
			Smooth	Normal	Rough
Caddo.....	2,419.5	2331	0.1	89.6	10.3
De Soto.....	1,019.5	656	0.2	94.0	5.8
Claiborne.....	827.5	627	-	100.0	-
Union.....	662	427	-	97.6	2.3
Lincoln.....	1,228.5	715	-	97.1	2.9
Jackson*.....	422.5	422.5	-	98.3	1.6

\* Percentages based on all gin samples classed, since individual samples did not show bale number.



Figure 3.--Amount of Half and Half cotton grown in relation to staple and grade



## Financing Cotton Production

Credit is an important factor in financing the production of cotton. The old type of store credit is gradually being replaced by production credit facilities which more nearly meet the needs of the enterprise. Despite the low income of cotton producers for several years immediately preceding 1934, 38 percent of the farmers interviewed financed themselves in 1934 (table 22). The local bank was the source of credit for 29 percent of the farmers, and the local merchant 16 percent. Some 12 percent of the farmers studied obtained financial assistance through emergency seed loans, and between 6 and 7 percent obtained funds to grow the crop through production credit corporations.

Negro farmers' chief sources of credit were the local merchants and seed loans. Nearly 16 percent of the Negro farmers financed themselves.

Table 22.--Percentage of farmers following different methods of financing crop

Method of financing*	Total	White	Negro
	Percent	Percent	Percent
Self.....	37.7	42.2	15.9
Bank.....	29.0	33.7	6.3
Merchant.....	16.0	10.8	59.0
Production credit corporation.....	6.5	6.2	7.9
Factor.....	0.5	0.6	-
Emergency seed loan.....	12.5	7.2	38.1

\*In a few instances more than one source of credit was employed.

## Marketing Procedure

Fifty-eight percent of those included in this study sold 26 percent of all the cotton produced as rapidly as it was ginned. Forty percent of those interviewed held 23 percent of the cotton 90 days or longer after ginning, and 16 percent of the farmers held 37 percent of the cotton 30 to 60 days before selling. The remaining 7.6 percent of the farmers sold 4.9 percent of the entire cotton produced within 20 days after ginning.

Forty-seven percent of the farmers sold their cotton to local merchants, 31 percent to buyers' agents, and 32.5 percent marketed their cotton through a cooperative (table 23). Forty-six percent of the group obtained a Government loan on 26 percent of the 1934 production.

Less than 2 percent of the farmers interviewed sold approximately 20 percent of the total crop according to Government class.

The ginner was the principal buyer of cottonseed, handling the seed for 73 percent of the farmers studied. Nearly 10 percent of the farmers sold seed direct to the oil mills. An additional 5 percent sold their seed for feed or seeding purposes. The remainder of the farmers kept all their seed for home use.

Table 23.--Marketing procedure

Procedure	Total Percent	White Percent	Negro Percent
Farmers selling part or all of cotton			
as ginned.....	58.0	50.5	50.8
Cotton sold as ginned.....	26.4	27.3	18.7
Sold 90 days or longer after ginning:			
Farms.....	30.6	43.1	22.2
Cotton.....	23.3	25.1	7.3
Sold 30-60 days after ginning:			
Farms.....	16.0	15.0	20.6
Cotton.....	36.6	33.3	65.2
Sold 20 days or less after ginning:			
Farms.....	7.6	6.9	11.1
Cotton.....	4.9	5.1	3.1
Farms selling all or part of lint to:			
Local merchant.....	47.2	47.0	47.6
Buyer's agent.....	31.2	33.3	20.6
Farmers' cooperative.....	32.5	32.4	33.3
Government loan received on all or part of cotton:			
Farms.....	46.1	47.0	41.3
Cotton.....	26.1	27.7	12.4
Sold according to Government class:			
Farms.....	1.9	2.3	-
Cotton.....	19.7	21.2	-
Holding for sale according to Government class:			
Farms.....	2.2	2.6	-
Cotton.....	1.5	1.7	-
Farms selling all or part of cotton seed to:			
Ginner.....	73.2	71.2	82.5
Oil mill.....	9.5	9.2	11.1
Feed or seed.....	4.6	5.6	-

Influence of Cotton Extension

The preceding information relating to the cotton production and marketing practices being followed on the farms included in the study is for the crop year 1934. The information presented throughout the remainder of this circular relating to the influence of extension teaching upon the adoption of new or better cotton practices reflects the cumulative results of years of extension teaching effort.

That result demonstrations in cotton production had been conducted at some time or other on their farms under the supervision of extension agents was reported by 17.6 percent of the white farmers and by 1.6 percent of the Negro



farmers interviewed (table 24). On 8.8 percent of the farms operated by white farmers result demonstrations in cotton had been conducted by boys in connection with their 4-H club work. Result demonstrations had been conducted by white farmers on 11.4 percent of the farms.

That cotton extension teaching activities other than result demonstrations had been conducted on their farms was reported by 14.7 percent of the white farmers and by 1.6 percent of the Negro farmers. Nearly 97 percent of the white farmers and nearly 91 percent of the Negro farmers reported having personally contacted the county agricultural agent. Nearly 15 percent of the white farmers had been in touch with the State agronomy specialist and slightly more than 26 percent reported contacts with other specialists from the State extension office.

Table 24.--Cotton result demonstrations conducted and contacts made with extension workers

Item	Total Percent	White Percent	Negro Percent
Farms on which cotton result demonstrations had been conducted by:			
Adults.....	9.8	11.4	1.6
Juniors.....	7.3	8.8	-
Either or both.....	14.9	17.6	1.6
Farms on which other cotton extension activities had been conducted.....	12.5	14.7	1.6
Farmers reporting personal contacts with:			
County agricultural agents.....	95.7	96.7	90.5
State agronomy specialist.....	12.7	14.7	3.2
Other State specialists.....	22.2	26.5	1.6
Any extension workers.....	96.5	97.7	90.5

#### Exposure to Extension Information and Adoption of Recommendations

Nearly 100 percent (99.4) of all the farmers interviewed reported having received information regarding cotton production or marketing from the extension service (table 25). Part of this very high percentage of farmers is undoubtedly the result of the Agricultural Adjustment program for cotton handled through the local county extension offices. The white farmers reported that they had received such information in an average of 6.4 different ways, the Negro farmers in 4.1 ways. Practically every farmer interviewed, including both white and Negro, reported that he had followed one or more of the recommendations of extension workers. On the average, white farmers adopted about one more practice per farm than did the Negro farmers - 5.02 as compared to 4.17.



Table 25.--Exposure to cotton extension teaching and the adoption of improved cotton practices

Item	Total	White	Negro
Percentage of farmers in any way ever exposed to cotton extension.....	99.4	99.7	98.4
Average number of different teaching means and agencies to which exposed.....	6.0	6.4	4.1
Percentage of farmers adopting improved cotton practices as result of extension influence..	98.6	98.7	98.4
Average number of different teaching means and agencies mentioned as contributing to adoption of practices.....	4.4	4.6	3.3
Number of cotton practices adopted per 100 farms.....	487	502	417

#### Kinds of Practices Adopted

Nearly 96 percent of the farmers included in the study made adjustments in cotton acreage in accordance with contracts with the Agricultural Adjustment Administration, arranged for through the county extension agents (table 26). Close spacing of cotton plants in the row was reported by 78 percent of the farmers. The terracing of some part of their cotton land as the result of information or assistance from extension workers was reported by 62 percent of the farmers. Approximately half of the farmers interviewed had used extension information relating to rotation of cotton land, use of commercial fertilizers, and improved cotton varieties.

Slightly less than one-third of the farmers had been influenced to obtain purebred seed. Approximately 20 percent followed recommendations of the Extension Service in preparation of the land for cotton and in the frequent cultivation of the growing crop. Information on cooperative marketing and insect control was reported used by 13 and 11 percent of the farmers, respectively.

Table 26.--Improved practices in cotton growing adopted by farmers

Practice	Farms	Percentage of all farms
Outlook and adjustment.....	353	95.7
Close spacing.....	289	78.3
Terracing.....	229	62.0
Rotation.....	192	52.0
Fertilizer.....	188	50.3
Improved variety.....	182	49.3
Purebred seed.....	115	31.2
Preparation of land.....	74	20.0
Frequent cultivation.....	72	19.5
Cooperative marketing.....	48	13.0
Insect control.....	41	11.1
Market according to grade and class.....	10	2.7
Market-news information.....	5	1.4

# Relative Influence of Teaching Means and Agencies

Because of the large number of ways in which extension workers may conduct their teaching it is desirable to be able to compare the effectiveness of the various teaching means and agencies employed in cotton extension. The frequency with which the various means and agencies were reported by cotton growers as having contributed to their adoption of the improved cotton producing and marketing practices advocated, offers one way of comparing their relative effectiveness. To facilitate such a comparison the data have been computed to the basis, total influence of all means and agencies equals 100 percent (table 27). Since the adoption of one practice by a farmer may be associated with two or more teaching means and agencies, the percentages given in table 27 indicate the relative influence of the means and agencies in comparison with each other, rather than the total percentages of practices in connection with which a particular means or agency was reported.

Table 27.--Methods influencing the adoption of improved cotton practices (1,798 practices)

Means or agency	Percentage of practices <sup>/1</sup>		
	Total	White	Negro
Indirect.....	23.8	21.6	39.4
General meeting.....	18.8	18.6	20.4
Office call.....	15.3	15.2	16.6
News story.....	14.4	15.6	5.5
Farm visit.....	7.2	7.5	5.3
Circular letter.....	5.9	6.0	5.3
Bulletin.....	4.8	5.3	0.9
Result demonstration:			
Adult.....	4.3	4.3	4.3
Junior.....	0.9	1.0	-
Method-demonstration meeting.....	3.4	3.7	0.9
Radio.....	0.7	0.7	0.5
Exhibit.....	0.2	0.2	0.3
Telephone call.....	0.2	0.2	-
Correspondence.....	0.1	0.1	0.3
Poster.....	-	-	0.3

/1

Computed to basis, total influence of all methods equals 100 percent. Actually the adoption of a single practice frequently involves two or more means or agencies.

The spread of information regarding cotton from one neighbor to another, usually referred to as indirect influence, explains the adoption of approximately 24 percent of the practices changed on the farms included in the study. In the case of practices adopted by Negro farmers the indirect influence accounted for

nearly two-fifths of the cotton practices changed. This is in keeping with the Negro's traditional dependence upon his landlord, or some other white man for information and assistance.

Heading the list of direct teaching activities in the percentage of practices influenced is the general community meeting, the term being used in this connection to refer to all extension meetings other than such specialized types of meetings as method-demonstration meetings, leader-training meetings, and extension schools. The two latter types of meeting were not employed in conducting cotton extension teaching in the areas studied. General meetings were credited with having influenced the adoption of nearly 13 percent of all cotton practices, being about as effective with Negroes as with white farmers.

Calls by farmers at the extension office were the third important influence upon the adoption of cotton practices, and influenced 15 percent of the practices reported changed.

The extension news story followed the office call in relative effectiveness, being reported in connection with more than 14 percent of the practices adopted. The news story was only about one-third as effective in influencing Negro as white farmers. This is in keeping with the smaller percentage of Negro farmers taking newspapers, reported in table 2(b).

Personal visits to the farm by an extension worker were reported in connection with the adoption of 7.2 percent of all practices, being somewhat lower for Negro than for white farmers. Mimeographed or printed circular letters were credited with nearly as large a total influence as were farm visits, being reported in connection with nearly 6 percent of the practices changed.

Approximately one practice out of every 20 was associated with information obtained from a printed bulletin or circular of the agricultural college or of the United States Department of Agriculture. However in the case of practices adopted by Negro farmers bulletins were mentioned in only about one practice in 100.

The small direct influence of the result demonstration, conducted either by an adult farmer or by a boy in connection with his 4-H club work, raises a question as to whether the field demonstration is conducted primarily as a direct teaching activity, or whether its greatest value may not be to develop confidence on the part of farmers, and to vitalize other teaching activities. The influence of the result demonstration in teaching improved cotton practices is quite consistent with the results of similar extension studies. /3

The method demonstration meeting, which involves the teaching of skills to a group, was credited with having influenced 3.4 practices out of every 100 adopted.

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/3 Wilson, M. C. Extension methods and their relative effectiveness, U. S. Dept. Agr. Tech. Bull. 106, 48 pp. illus. 1929.



The combined influence of radio, exhibits, telephone calls, personal correspondence, and posters, accounted for the adoption of but 1.2 practices out of every 100 reported.

### Influence of Means and Agencies Compared to Other Studies

It is of interest to compare the relative influence of the various teaching activities as brought out in this study, with similar data on cotton extension taken from the field studies made in Georgia and Arkansas in 1925/<sup>3</sup> (table 28). As the Georgia and Arkansas studies dealt with the entire range of subject matter included in the extension programs of the counties studied, information on cotton relates to cotton production in a restricted sense, whereas the cotton study being reported in this circular includes terracing, crop rotation, and similar subject matter closely allied with cotton production and marketing. The outstanding differences in influence of the teaching means and agencies as brought out by the two sources of data are:

Table 28.--Methods of influencing the adoption of cotton practices compared with other areas

Means or agency	Percentage of cotton practices <sup>/1</sup>	
	Louisiana area	Arkansas and Georgia areas/ <sup>2</sup>
Indirect influence.....	23.8	31.7
General meetings.....	18.8	11.7
Office call.....	15.3	6.6
News story.....	14.4	10.2
Farm visit.....	7.2	16.6
Circular letter.....	5.9	1.6
Bulletin.....	4.8	4.3
Result demonstration:		
Adult.....	4.3	7.4
Junior.....	0.9	1.5
Method demonstration meeting.....	3.4	6.4
Radio.....	0.7	-
Exhibit.....	0.2	0.4
Telephone call.....	0.2	0.1
Correspondence.....	0.1	0.2
Extension school.....	-	0.7
Leader training.....	-	0.2

<sup>/1</sup> Computed to basis, total influence of all methods equals 100 percent.

<sup>/2</sup> Wilson, M. C., and Reid, T. Roy. The effectiveness of extension in reaching rural people. Ark. Col. Agr. Ext. Circ. 221. 24 pp., illus., June 1926.  
Wilson, M. C., and Giles, J. K. The effectiveness of extension in reaching rural people. Ga. State Col. Agr. Ext. Serv. Bull. 319. 28 pp., illus., July 1926.



Less indirect influence relatively in the Louisiana area.

Much greater influence of office calls, which is largely offset by the much lower influence of farm visits. .

Greater influence of the general meeting, and less influence of the specialized method-demonstration meeting.

Greater influence of the news story, and much greater influence of circular letters.

Less influence of result demonstrations conducted by both adults and 4-H club members.

Radio had not come into general use as an extension teaching device in 1925 when the data were collected in Arkansas and Georgia.

The influence of exhibits, telephone calls, and personal correspondence was equally low in both cases.

The cotton adjustment program, handled by the extension workers for the Agricultural Adjustment Administration during 1933 and 1934, was no doubt largely responsible for the shift in relative influence of the various teaching means and agencies. In order to handle the emergency program it was necessary for agents to place more emphasis on meetings, news stories, and circular letters, with correspondingly less time devoted to visits to farms either to give personal assistance or to supervise result demonstrations. The nature of the emergency program brought farmers in greatly increased numbers to the county extension office, and reduced the indirect spread of improved practices from neighbor to neighbor.

#### Effectiveness of Means and Agencies as Related to Their Use

In considering the effectiveness of the teaching means and agencies employed in forwarding the cotton extension program, it is desirable to compare the relative influence of each upon adoption of practices, with the amount of emphasis placed upon each.

Extent of use of means and agencies.---The percentage of farmers who were exposed to cotton extension information through the different teaching means and agencies may be taken as an indication of the emphasis extension workers placed upon these teaching activities (table 29). Between 80 and 90 percent of all farmers had made calls at the extension office, had attended general meetings, or had discussed the cotton extension program with neighbors. With the exception of attendance at general meetings these percentages were about as high for Negro farmers as for white farmers. Seventy-two percent of the white farmers had read news articles relating to cotton extension, in contrast to 33 percent of the Negro farmers interviewed. Circular letters relating to cotton had been received by 52 percent of the white farmers and 44 percent of the Negro farmers.

From two and one-half to three times as great percentages of white farmers as of Negro farmers had been exposed to cotton extension information through bulletins, farm visits, method-demonstration meetings, and result demonstrations. Extension talks on cotton over the radio had been heard by 18 percent of the white farmers, but by only 3 percent of the Negro farmers.

Table 29.--Percentage of farmers exposed to different teaching methods employed in cotton extension

Means or agency	Total Percent	White Percent	Negro Percent
Office call.....	87.8	88.2	85.7
General meeting.....	86.2	89.2	71.4
Indirect.....	85.1	84.0	90.5
News story.....	65.0	71.6	33.3
Circular letters.....	50.7	52.0	44.4
Bulletins.....	43.4	49.0	15.9
Farm visit.....	43.1	47.7	20.6
Method-demonstration meeting.....	37.7	42.5	14.3
Result demonstration:			
Adult.....	31.7	35.3	14.3
Junior.....	12.7	14.4	4.8
Exhibit.....	24.4	28.4	4.8
Radio.....	15.7	18.3	3.2
Correspondence.....	11.1	13.1	1.6
Telephone.....	6.2	7.5	-
Poster.....	1.6	1.6	1.6
Any method.....	92.4	99.7	98.4

Ratio of takes to exposures.---The ratio of "takes" to "exposures" for each means and agency may be computed by relating the number of farmers exposed to each means and agency (table 29) to the number of farmers reporting that means or agency as having influenced the adoption of one or more cotton practices (table 30). The computed ratios are listed in table 31.

The general meeting heads the list with more than 96 percent of the farmers attending general meetings and reporting general meetings as having contributed to the adoption of improved practices. Indirect spread from neighbor to neighbor follows closely with a ratio of takes to exposures of more than 95 percent. These two ratios were equally as high for Negro as for white farmers.

Seven out of eight farmers calling at the office for cotton information reported that they had acted on the information obtained. This was true of four out of five of those who read cotton news stories. The method demonstration meeting seems to have been proportionately less effective than the general meeting. Two out of every three farmers seeing a cotton result demonstration conducted by an adult farmer, or visited by the agent at the farm, were convinced by what they saw or were told. These ratios are much higher for Negro than for white farmers.

Bulletins were only about half as effective with Negroes as with white farmers. With the latter, bulletins were nearly as effective as personal visits to the farm by extension agents.

The small number of Negro farmers exposed to radio talks, posters, personal letters, and exhibits, makes the apparently very high ratio of takes to exposures for these means and agencies with Negroes of little significance.

Table 30.--Percentage of farmers influenced by various teaching methods to adopt cotton practices

Means or agency	Total Percent	White Percent	Negro Percent
General meeting.....	83.2	85.9	69.8
Indirect.....	81.0	79.7	87.3
Office call.....	74.2	74.5	73.0
News story.....	51.8	58.2	20.6
Method-demonstration meeting.....	28.7	33.3	6.3
Farm visit.....	28.4	30.7	17.5
Bulletin.....	24.9	20.1	4.8
Circular letter.....	22.5	22.5	22.2
Result demonstration:			
Adult.....	21.1	22.9	12.7
Junior.....	4.3	5.3	-
Radio.....	6.5	7.2	3.2
Telephone call.....	1.3	2.3	-
Exhibit.....	1.6	1.6	1.6
Correspondence.....	0.8	0.6	1.6
Poster.....	0.3	-	1.6
Any method.....	98.6	98.7	98.4

Table 31.--Percentage of farmers exposed to teaching methods who were influenced by them to adopt cotton practices

Means or agency	Total Percent	White Percent	Negro Percent
General meeting.....	96.5	96.3	97.8
Indirect.....	95.2	94.9	96.5
Office call.....	84.6	84.4	85.2
News story.....	79.6	81.3	61.9
Method-demonstration meeting.....	76.2	78.5	44.4
Result-demonstration:			
Adult.....	66.7	64.8	88.0
Junior.....	38.3	40.9	-
Farm visit.....	66.0	64.4	84.6
Bulletin.....	57.5	59.3	30.0
Circular letter.....	44.4	43.4	50.0
Radio.....	41.4	39.3	100.0
Telephone.....	30.4	30.4	-
Poster.....	16.7	-	100.0
Correspondence.....	7.3	5.0	100.0
Exhibit.....	6.7	5.7	33.3
Any method.....	99.2	99.0	100.0



### Importance of Several Kinds of Exposures

No attempt was made in collecting the field data to obtain information as to the numbers of meetings attended, the number of calls at the extension office, the number of cotton news stories read, and the like, by the individual farmers interviewed. Information was obtained, however, as to the numbers of different kinds of teaching activities to which each farmer was exposed. Sorting the records, according to the number of different kinds of means and agencies employed in cotton extension teaching to which farmers were exposed, brings out clearly the great importance of presenting information in several ways (table 32).

The rate of adoption of recommended cotton practices, expressed in number of practices adopted per 100 farms, increased from 237 for the group with only 1 or 2 exposures to 748 when the farmers interviewed had received information in 11 or more different ways. The increase in number of practices adopted per additional kind of exposure is larger for six exposures or less than for more than six kinds of exposures.

### Interrelationship of Methods

Even though the single means or agency is selected which is best suited for a particular teaching situation, it is well to keep in mind that the occasions when no other means or agencies have been previously employed for the same purpose are usually rare. The individual teaching methods tend to strengthen each other. For example, the farm visit may stimulate attendance at meetings; news stories and circular letters may tell of the results of the field demonstration or what a specialist said at a meeting; attendance at meetings, news stories, and radio talks may stimulate requests for bulletins. Important as it may be for extension workers to obtain a fairly accurate picture of the total relative influence of the various teaching activities and to consider such influence in the light of emphasis placed upon them, it is of even greater importance to keep in mind the total outcome resulting from the entire extension teaching effort over a considerable period of time, rather than just the returns from a particular unit of effort.

Table 32.--Adoption of cotton practices as affected by number of ways extension information was received

Means and agencies to which exposed	Farmers in group	Percentage of all farmers	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
0.....	2	0.5	-	-
1--2.....	35	9.5	91.4	237
3--4.....	93	25.2	100.0	364
5--6.....	82	22.2	100.0	499
7--8.....	74	20.1	100.0	569
9--10.....	56	15.2	100.0	614
11--13.....	27	7.3	100.0	748



### Other Factors Affecting the Adoption of Cotton Practices

Aside from the means and agencies employed in cotton extension teaching there are a number of other factors that should be considered in connection with a study of extension influence upon the adoption of cotton practices. These factors will be discussed from the standpoint of all farmers interviewed, whether white or Negro.

#### Tenure

Only 50 of the 369 farmers interviewed rented all the land they farmed. Practically the same percentages of owner and tenant operators reported the adoption of at least some of the cotton recommendations of the Extension Service (table 33). The rate of adoption of practices per 100 farms was only slightly greater for the owner group than for the tenant group.

Table 33.--Condition of tenure in relation to the adoption of cotton practices

Tenure	Farms in group	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
Owners.....	319	98.7	498
Tenants.....	50	98.0	418

#### Character of Roads

Whether the farmstead was situated on an improved road suitable for travel under all weather conditions, or on a road entirely unimproved seems to have had no influence on the adoption of extension recommendations by the farmers involved (table 34).

Table 34.--Character of roads in relation to adoption of cotton practices

Kind of road	Farms in group	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
All-weather.....	109	99.1	490
Other improved.....	153	98.7	497
Unimproved.....	107	98.1	471

### Size of Cotton Acreage

The larger the size of the cotton-producing enterprise the greater the use made of extension information (table 35). Where more than 45 acres of cotton were grown per farm, recommended practices were adopted at the rate of 582 practices per 100 farms, as compared to 499 for the 16 to 45 acre group, and to 338 practices per 100 farms for the farms with 15 acres of cotton or less.

Table 35.--Acres in cotton as related to adoption of cotton practices

Acres	Farms in group	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
1--15.....	119	96.6	338
16--45.....	153	99.4	499
Over 45.....	91	100.0	582

### Distance From Extension Office

Whether the farmsteads were less or more than 10 miles from the extension office had no apparent influence upon either the percentage of farmers adopting cotton practices, or the average number of practices adopted per farm (table 36).

Table 36.--Distance from extension office as related to adoption of cotton practices

Distance in miles	Farmers in group	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
0--10.....	140	97.1	494
Over 10.....	229	99.6	483

### Educational Training of Farmers

The formal educational training of nearly 68 percent of the farm operators interviewed was limited to the eighth grade or less. Twenty-four percent had attended high school only, and an additional 8 percent had gone to college (table 37). Those attending high school adopted about one more practice per farm on the

average than those who did not attend school beyond the eighth grade. The small number of farmers in the college group may account for the apparent decrease in number of practices adopted on the average by the college group as compared to the high-school group.

Table 37.--Educational training as related to adoption of cotton practices

Education	Farms in group	Percentage of all farmers	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
Common school.....	243	67.5	98.4	455
Some high school but no college.....	89	24.1	98.9	564
Some college.....	31	8.4	100.0	522

#### Age of Farmers

When the farmers included in the study are sorted into 5-year age groups it is apparent that age had little influence upon the acceptance of extension recommendations in regard to producing and marketing cotton (table 38). The rate of adoption of practices was somewhat higher for the age groups 41 to 45, 46 to 50, and 51 to 55 years, than for the age groups of 30 years and under and 61 years and over.

Table 38.--Age of farmers in relation to adoption of cotton practices

Age	Farmers in group	Percentage of all farmers	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
30 and under.....	21	5.7	95.2	448
31--35.....	22	6.0	100.0	491
36--40.....	20	7.9	96.6	476
41--45.....	54	14.6	100.0	528
46--50.....	64	17.3	98.4	512
51--55.....	54	14.6	100.0	515
56--60.....	46	12.5	100.0	487
61 and over.....	79	21.4	97.5	434

### Contact With Extension Activities

More than 96 percent of the farmers interviewed had attended extension meetings or had otherwise made contacts with extension workers. The handling locally of the cotton adjustment program by the county extension agents was unquestionably an important factor in contributing to such a high percentage. Although the number of farmers reporting no contact with the cotton extension program is too small for a satisfactory comparison, the relationship between the percentages of farmers adopting practices, and the number of practices adopted per 100 farms is about in keeping with the findings of other extension studies<sup>/4</sup> (table 39).

Table 39.--Contact with extension workers as related to adoption of cotton practices

Group	Farmers in group	Per- centage of all farmers	Percentage of farmers adopting cotton practices	Practices adopted per 100 farms
Contact with extension workers.....	356	96.5	99.4	496
No contact.....	13	3.5	76.9	254

### Summary

The information relative to cotton growing and the influence of the cotton extension program, discussed in this circular, was obtained from 369 representative cotton producers in six northwest Louisiana parishes. Approximately 86 percent of the records were furnished by owner-operators and about 83 percent by white farmers. Tenants having little or no responsibility for the cultural practices being followed in producing cotton were not interviewed.

Considering the land which in 1934 was in cultivated crops, including hay, 42 percent of this acreage was protected by terraces of one kind or another. A short crop rotation of but 2 years was reported for 52 percent of the farms, and 33 percent of the farmers practiced a longer rotation. That no attempt was made to grow crops in an orderly sequence was reported by 15 percent.

The three varieties of cotton most commonly grown in 1934 were Half and Half, reported by 40 percent of the farmers; Delta and Pine Land by 23 percent; and Lankart by 11 percent. In spite of its uniformly short staple, the growing of the Half and Half variety persists on a large number of farms because of its early-maturing characteristic, high percentage of lint to seed, and relatively

<sup>/4</sup> Wilson, M. C., and Brokaw, W. H. Extension results as influenced by various factors. A study of 312 farms and farm homes in Hamilton County, Nebr. Nebr. Agr. Col. Ext. Circ. 25, 26 pp. [mimeogr.] 1929.



good yields. Failure of local cotton buyers to pay central-market differentials for length of staple has undoubtedly been an important factor in this connection.

Approximately 36 percent of the cotton growers used chemical fertilizers in 1934. Of those using fertilizer, 48 percent applied an average of 162 pounds per acre under the seedbed. An equal percentage applied an average of 152 pounds per acre in the seedbed. The 11 percent of farmers side-dressing with fertilizer applied it at the rate of 118 pounds per acre. The most common fertilizer formula used was the 4-8-4.

Close spacing of cotton (10 to 12 inches) was reported by 54 percent of the farmers; medium spacing (12 to 14 inches) by 26 percent; and wide spacing (14 inches and above) by 10 percent. Two and seven-tenths plants per hill were left on the average. The cotton was cultivated slightly more than five times, Georgia stock and sweep being the only implement used on 85 percent of the farms. Frequency of cultivation was more closely associated with yield of cotton in 1934 than variety, fertilizer, or width of spacing.

Few of the farmers interviewed had obtained information from the gin regarding the Government class of their cotton. Apparently ginners have given little thought to furnishing growers with the grade and staple information returned in connection with the bale samples sent the Bureau of Agricultural Economics for official classing. Up to the time of the study the county agricultural agent in the parishes had not obtained this information for extension use.

Two thirds of the farmers were able to finance the 1934 cotton crop themselves or make necessary arrangements at the bank. Slightly more than one-fourth of the cotton was sold as ginned and two-fifths more was sold within 60 days after ginning.

Approximately one-third of the farmers sold all or part of their lint through a cooperative marketing association. Nearly three-fourths of the farmers sold their cotton seed to the gin which ginned the cotton.

Nearly 100 percent (99.4) of all the farmers interviewed had received information on cotton production or marketing from the extension service. Practically all of these cotton producers (98.6 percent) reported that they were following one or more of the recommendations of the cotton extension program. Participation in acreage adjustment in connection with the Agricultural Adjustment Administration program, as would be expected, was reported by nearly all cotton growers (95.7 percent). Close spacing, terracing to prevent erosion, rotation of crops, use of fertilizer, and the growing of an improved variety were practices reported by one-half or more of the farmers interviewed.

The indirect passing of extension information from neighbor to neighbor was the most important single influence in bringing about adoptions of improved cotton practices. General meetings, office calls, news stories, circular letters, and result demonstrations were among the most important ways in which farmers were directly influenced by extension teaching to accept new or better practices.

Such factors as condition of tenure, size of farm, distance of the farmstead from the county seat, character of roads, educational training, and age of farmers seem to have had comparatively little influence upon the extent of adoption of improved practices.

However, the number of instances of adoptions of improved practices increased directly as the number of ways extension information was received increased.



# Influence of Cotton Extension Upon Cotton Production in Northwest Louisiana, 1935

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